CLAIMS

What is claimed is:

1. A microelectronic package, comprising:

a heat spreader having a first surface, said heat spreader having at least one recess defined therein by at least one sidewall extending from said heat spreader first surface to a recess bottom surface;

at least one microelectronic die disposed within said at least one recess, said at least one microelectronic die having an active surface, a back surface, and at least one side; and

a thermally conductive material adhering said at least one microelectronic die back surface to said recess bottom surface.

2. The microelectronic package of claim 1, further including build-up layers disposed on said microelectronic die active surface and said heat spreader first surface.

3. The microelectronic package of claim 2, wherein said build-up layers comprise at least one dielectric layer abutting said at least one microelectronic die active surface and said heat spreader first surface and at least one conductive trace disposed on said at least one dielectric layer.

4. The microelectronic package of claim 3, wherein said at least one dielectric layer is disposed within gaps between said at least one recess sidewall and said at least one microelectronic die side.

5. The microelectronic package of claim 1, further including a filler material disposed in gaps between said at least one recess sidewall and said at least one microelectronic dice side.

6. The microelectronic package of claim 1, wherein said thermally conductive material is selected from the group consisting of resin, epoxy, metal and metal alloys.

7. The microelectronic package of claim 1, wherein said at least one recess sidewall is sloped.

8. A microelectronic package, comprising:

a heat spreader having a first surface, said heat spreader having at least one recess defined therein by at least one sidewall extending from said heat spreader first surface to a recess bottom surface;

at least one microelectronic die disposed within said at least one recess, said at least one microelectronic die having an active surface, a back surface, and at least one side;

a first plurality of solder bumps disposed upon the microelectronic die back surface; and

a second plurality of solder bumps disposed in the heat spreader at least one recess, wherein the first plurality and the second plurality are each aligned such that the microelectronic die is aligned into a position within the at least one recess.

9. The microelectronic package of claim 8, further including:

a wetting layer disposed between the first plurality of solder bumps and the microelectronic die back surface.

10. The microelectronic package of claim 8, further including:

a wetting layer disposed between the second plurality of solder bumps and the recess bottom surface.

11. A microelectronic package, comprising:

a heat spreader having a first surface, said heat spreader having at least one recess defined therein by at least one sidewall extending from said heat spreader first surface to a recess bottom surface;

at least one microelectronic die disposed within said at least one recess, said at least one microelectronic die having an active surface, a back surface, and at least one side; and

build-up layers disposed on said microelectronic die active surface and said heat spreader first surface, wherein said build-up layers comprise at least one dielectric layer abutting said at least one microelectronic die active surface and said heat spreader first surface and at least one conductive trace disposed on said at least one dielectric layer.

12. The microelectronic package of claim 11, wherein said at least one dielectric layer is disposed within gaps between said at least one recess sidewall and said at least one microelectronic die side.

13. The microelectronic package of claim 11, further including a filler material disposed in gaps between said at least one recess sidewall and said at least one microelectronic dice side.

14. A method of fabricating a microelectronic package, comprising:

providing a heat spreader having a first surface, said heat spreader having at least one recess defined therein by at least one sidewall extending from said heat spreader first surface to a recess bottom surface;

disposing at least one microelectronic die within said at least one recess, said at least one microelectronic die having an active surface, a back surface, and at least one side; and

adhering said at least one microelectronic die back surface to said recess bottom surface.

15. The method of claim 14, further including:

forming at least one dielectric material layer on at least a portion of said microelectronic die active surface and said heat spreader first surface;

forming at least one via through said at least one dielectric material layer to expose a portion of said microelectronic die active surface; and

forming at least one conductive trace on said at least one dielectric material layer which extends into said at least one via to electrically contact said microelectronic die active surface.

16. The method of claim 14, further including disposing a filler material in gaps between said at least one recess sidewall and said at least one microelectronic die side.

17. The method of claim 14, wherein adhering said at least one microelectronic die back surface to said recess bottom surface comprises adhering said at least one microelectronic die back surface to said bottom surface with a thermally conductive material selected from the group consisting of resin material filled with thermally conductive particulate material and epoxy material filled with thermally conductive particulate material.

18. The method of claim 14, wherein adhering said at least one microelectronic die back surface to said recess bottom surface comprises adhering said at least one microelectronic die back surface to said bottom surface with a thermally conductive material selected from the group consisting of metal and metal alloys.

19. The method of claim 11, wherein adhering said at least one microelectronic die back surface to said recess bottom surface comprises:

disposing a plurality of first solder bumps on said at least one microelectronic die back surface;

disposing a plurality of second solder bumps on said recess bottom surface; and

forming a substantially continuous solder layer between said at least one microelectronic die back surface to said recess bottom surface by reflowing said plurality of first solder bumps and said second plurality of solder bumps.

20. A method of fabricating a microelectronic package, comprising:

providing a heat spreader having a first surface, said heat spreader having a plurality of recesses defined therein by a plurality of sidewalls extending from said heat spreader first surface to recess bottom surfaces of said plurality of recesses;

disposing at least one of a plurality of microelectronic dice within each of said plurality of recesses, each of said plurality of microelectronic dice having an active surface, a back surface, and at least one side;

adhering at least one of said plurality of microelectronic die back surfaces of said plurality of microelectronic dice to at least one corresponding recess bottom surface of said plurality of recesses; and

singulating said plurality of microelectronic dice by cutting through said heat spreader.

21. The method of claim 20, further including:

forming at least one dielectric material layer on at least a portion of said microelectronic die active surface of said plurality of microelectronic dice and said heat spreader first surface;

forming at least one via through said at least one dielectric material layer to expose a portion of said microelectronic die active surfaces of said plurality of microelectronic dice; and

forming at least one conductive trace on said at least one dielectric material layer which extends into said at least one via to electrically contact at least one of said microelectronic die active surfaces of said plurality of microelectronic dice.

22. The method of claim 20, wherein forming at least one dielectric material layer on at least a portion of said microelectronic die active surface of said plurality of microelectronic dice and said heat spreader first surface comprises flowing at least one dielectric layer into gaps between said at least one of said plurality of recess sidewalls and said at least one microelectronic dice side of said plurality of microelectronic dice.